

# Sequences and Series

## Curriculum Expectations

By the end of this course, students will:

- make connections between sequences and discrete functions, represent sequences using function notation, and distinguish between a discrete function and a continuous function
- determine and describe a recursive procedure for generating a sequence, given the initial terms, and represent sequences as discrete functions in a variety of ways
- connect the formula for the  $n$ th term of a sequence to the representation in function notation, and write terms of a sequence given one of these representations or a recursion formula
- represent a sequence algebraically using a recursion formula, function notation, or the formula for the  $n$ th term, and describe the information that can be obtained by inspecting each representation
- determine recursive patterns in the Fibonacci sequence, in related sequences, and in Pascal's triangle
- determine and describe the relationship between Pascal's triangle and the expansion of binomials, and apply the relationship to expand binomials raised to whole-number exponents
- identify sequences as arithmetic, geometric, or neither, given a numeric or algebraic representation
- determine the formula for the general term of an arithmetic sequence or geometric sequence, and apply the formula to calculate any term in a sequence
- determine the formula for the sum of an arithmetic or geometric series, and apply the formula to calculate the sum of a given number of consecutive terms

## Schedule of Topics

Day	Topic	Homework	Questions?
1	Arithmetic Sequences	Worksheet	
2	Geometric Sequences	Worksheet	
3	Recursive Sequences	Worksheet	
4	Pascal's Triangle / Binomial Theorem	Worksheet	
5	Arithmetic Series	Worksheet	
6	Geometric Series	Worksheet	
7	Review	p.410 #1,3-5,7-18	

## Assessment and Evaluation

Quiz/Test/Task	Date	K	A	T	C

# Skills Checklist

At the end of this strand, I am able to:

- |  |            |           |            |
|--|------------|-----------|------------|
| • Identify an arithmetic sequence or series                        | [ ] Always | [ ] Often | [ ] Seldom |
| • Identify a geometric sequence or series                          | [ ] Always | [ ] Often | [ ] Seldom |
| • Generate terms in an arithmetic sequence given a formula         | [ ] Always | [ ] Often | [ ] Seldom |
| • Develop a formula for the general term of an arithmetic sequence | [ ] Always | [ ] Often | [ ] Seldom |
| • Determine the number of terms in an arithmetic sequence          | [ ] Always | [ ] Often | [ ] Seldom |
| • Generate terms in a geometric sequence given a formula           | [ ] Always | [ ] Often | [ ] Seldom |
| • Develop a formula for the general term of a geometric sequence   | [ ] Always | [ ] Often | [ ] Seldom |
| • Determine the number of terms in a geometric sequence            | [ ] Always | [ ] Often | [ ] Seldom |
| • Determine the sum of an arithmetic series given a formula        | [ ] Always | [ ] Often | [ ] Seldom |
| • Develop a formula for the sum of an arithmetic series            | [ ] Always | [ ] Often | [ ] Seldom |
| • Determine the sum of a geometric series given a formula          | [ ] Always | [ ] Often | [ ] Seldom |
| • Develop a formula for the sum of a geometric series              | [ ] Always | [ ] Often | [ ] Seldom |
| • Generate terms in a sequence using a recursive formula           | [ ] Always | [ ] Often | [ ] Seldom |
| • Develop formulae for simple recursive sequences                  | [ ] Always | [ ] Often | [ ] Seldom |
| • Generate Pascal's Triangle using a recursive procedure           | [ ] Always | [ ] Often | [ ] Seldom |
| • Recognize patterns in Pascal's Triangle                          | [ ] Always | [ ] Often | [ ] Seldom |
| • Identify and simplify terms in Pascal's Triangle                 | [ ] Always | [ ] Often | [ ] Seldom |
| • Use Pascal's Triangle to expand binomials                        | [ ] Always | [ ] Often | [ ] Seldom |
| • Solve applications involving sequences and series                | [ ] Always | [ ] Often | [ ] Seldom |
| • Develop models for situations involving sequences and series     | [ ] Always | [ ] Often | [ ] Seldom |

Student Comments

Parent/Guardian Comments

Teacher Comments